DERWENT-ACC-NO:

2001-476681

DERWENT-WEEK:

200627

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TITLE:

Double metal cyanide catalyst for polyetherpolyol

production contains double metal cyanide

compound,

organic ligand, e.g. tertiary-butanol, and two

or more

complex-formers such as functional polymers or

phosphorus

compounds

INVENTOR: EHLERS, S; HOFMANN, J; OOMS, P; STEINLEIN, C

PATENT-ASSIGNEE: BAYER AG[FARB] , BAYER MATERIALSCIENCE AG[FARB]

PRIORITY-DATA: 1999DE-1053546 (November 8, 1999)

PATENT-FAMILY: PUB-DATE LANGUAGE PUB-NO PAGES MAIN-IPC July 26, 2005 MX 229461 B N/A B01J 027/26 000 DE **19953546** A1 May 10, 2001 N/A 009 B01J 031/22 June 6, 2001 N/A AU 200112757 A 000 B01J 027/26 May 17, 2001 WO 200134297 A2 G 000 B01J 027/26 July 2, 2002 BR 200015395 A N/A 000 B01J 027/26 EP 1239957 A2 September 18, 2002 G 000 B01J 027/26 October 16, 2002 N/A CZ 200201552 A3 000 B01J 027/26 KR 2002059698 A July 13, 2002 N/A 000 B01J 027/26 CN 1387460 A December 25, 2002 N/A 000 B01J 027/26 April 15, 2003 JP 2003514073 W N/A047 C08G 065/28 HU 200203685 A1 April 28, 2003 N/A 000 B01J 027/26 November 1, 2002 MX 2002004552 A1 N/A 000 B01J 027/26

EP 1428575	A2		June 16, 2004	G
000	B01J	027/26		
EP 1428576	A1		June 16', 2004	G
000	B01J	027/26		
CN 1494947	Α		May 12, 2004	N/A
000	B01J	027/26		
EP 1239957			April 6, 2005	G
000	B01J	027/26		
DE 50010010			May 12, 2005	N/A
000	B01J	027/26		
RU 2254164			June 20, 2005	N/A
000				
US 6919293			July 19, 2005	N/A
000				
ES 2240194			October 16, 2005	N/A
000				
CN 1144616			April 7, 2004	N/A
000	B01J	027/26		

DESIGNATED-STATES: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CR CU CZ DE

DK DM DZ TE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ

LC LK LR

LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ PL PT RO RU SD SE SG SI SK

SL TJ TM

TR TT TZ UA UG US UZ VN YU ZA ZW AT BE CH CY DE DK EA ES FI FR GB GH

GM GR IE

IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TZ UG ZW AL AT BE CH CY DE

DK ES FI

FR GB GR IE IT LI LT LU LV MC MK NL PT RO SE SI AT BE CH CY DE DK ES

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GR IE IT LI LU MC NL PT RO SE AT BE CH CY DE DK ES FI FR GB GR IE IT

LI LU MC

NL PT RO SE AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT RO

SE

APPLICATION-DATA: PUB-NO	APPL-DESCRIPTOR	APPL-NO
APPL-DATE MX 229461B	N/A	2000WO-EP10550
October 26, 2000 MX 229461B	N/A	2002MX-0004552
May 7, 2002 MX 229461B	Based on	WO 200134297
N/A DE 19953546A1	N/A	1999DE-1053546
November 8, 1999 AU 200112757A	N/A	2001AU-0012757
October 26, 2000	147 22	2001110 0012737

AU 200112757A N/A	Based on	WO 200134297
WO 200134297A2 October 26, 2000	N/A	2000WO-EP10550
BR 200015395A October 26, 2000	N/A	2000BR-0015395
BR 200015395A October 26, 2000	N/A	2000WO-EP10550
BR 200015395A N/A	Based on	WO 200134297
EP 1239957A2 October 26, 2000	N/A	2000EP-0974461
EP 1239957A2 October 26, 2000	N/A	2000WO-EP10550
EP 1239957A2 N/A	Based on	WO 200134297
CZ 200201552A3 October 25, 2000	N/A	2000WO-EP10550
CZ 200201552A3 October 26, 2000	N/A	2002CZ-0001552
CZ 200201552A3 N/A	Based on	WO 200134297
KR2002059698A May 7, 2002	N/A	2002KR-0705872
CN 1387460A October 26, 2000	N/A	2000CN-0815309
JP2003514073W October 26, 2000	N/A	2000WO-EP10550
JP2003514073W October 26, 2000	N/A	2001JP-0536289
JP2003514073W N/A	Based on	WO 200134297
HU 200203685A1 October 26, 2000	N/A	2000WO-EP10550
HU 200203685A1 October 26, 2000	N/A	2002НU-0003685
HU 200203685A1 N/A	Based on	WO 200134297
MX2002004552A1 October 26, 2000	N/A	2000WO-EP10550
MX2002004552A1 May 7, 2002	N/A	2002MX-0004552
MX2002004552A1 N/A	Based on	WO 200134297
EP 1428575A2 October 26, 2000	Div ex	2000EP-0974461
EP 1428575A2 October 26, 2000	N/A	2004EP-0005548
EP 1428575A2 N/A	Div ex	EP 1239957

EP 1428576A1 October 26, 2000	Div ex	2000EP-0974461
EP 1428576A1	N/A	2004EP-0005549
October 26, 2000 EP 1428576A1	Div ex	EP 1239957
N/A CN 1494947A	N/A	2003CN-0158465
October 26, 2000 EP 1239957B1	N/A	2000EP-0974461
October 26, 2000 EP 123995 B1	N/A	2000WO-EP10550
October 26, 2000 EP 1239957B1	Related to	2004EP-0005548
October 26, 2000 EP 1239957B1	Related to	2004EP-0005549
October 26, 2000 EP 1239957B1	Related to	EP 1428575
N/A		
EP 1239957B1 N/A	Related to	EP 1428576
EP 1239957B1 N/A	Based on	WO 200134297
DE 50010010G October 26, 2000	N/A	2000DE-0510010
DE 50010010G October 26, 2000	N/A	2000EP-0974461
DE 50010(:0G October 26, 2000	N/A	2000WO-EP10550
DE 50010010G N/A	Based on	EP 1239957
DE 50010010G	Based on	WO 200134297
N/A RU 2254164C2	N/A	2000WO-EP10550
October 26, 2000 RU 2254164C2	N/A	2002RU-0115639
October 26, 2000 RU 2254164C2	Based on	WO 200134297
N/A US 6919293B1	N/A	2000WO-EP10550
October 26, 2000 US 6919293B1	N/A	2002US-0129579
May 7, 2002 US 691925JB1	Based on	WO 200134297
N/A ES 2240194T3	N/A	2000EP-0974461
October 26, 2000		
ES 2240194T3 N/A	Based on	EP 1239957
CN 1144616C October 26, 2000	N/A	2000CN-0815309

1494947 A , EP 1239957 B1 , DE 50010010 G INT-CL (!TC): B01J027/26, B01J031/00 , B01J031/02 , B01J031/06 , C07F009/40 , B01J031/22 , B01J031/26 , C07F003/06 , C07F015/06 . C07F019/00 , C08F004/50 , C08F004/60 , C08G065/00 , C08G065/02 , C08G065/10 . C08G065/26 , C08G065/28 , C08L071/02

ABSTRACTED-PUB-NO: DE 19953546A

BASIC-ABSTRACT:

NOVELTY - Double metal cyanide catalysts containing, in addition to (a) double

metal cyanides and (b) organic ligands, (c) 2 or more complex-formers other

than (b) comprising functionalized polymers such as polyethers or polyacrylamide (26 types listed) or compounds such as glycidyl ethers,

cyclodextrins, gallic acid or phosphorus compounds (11 types listed).

DETAILED DESCRIPTION - Double metal cyanide (DMC) catalyst containing (a) DMC

compound(s), (b) organic complex ligand(s) other than (c), (c) two or more

complex-forming components (other than b) comprising functionalized polymers

selected from polyethers, polyesters, polycarbonates, polyalkylene glycol

sorbitan esters, polyalkylene glycol glycidyl ethers, polyacrylamide, acrylamide-acrylic acid copolymers, polyacrylic acid, acrylic acid-maleic acid

copolymers, polyacrylonitrile, poly(meth)acrylates, poly-vinyl methyl ether,

poly-viny ethyl ether, polyvnyl acetate, polyvinyl alcohol, poly-(N-vinylpyrrolidone), N-vinylpyrrolidone-acrylic acid copolymers,

poly-vinyl methyl ketone, poly-(4-vinylphenol), acrylic acid-styrene copolymers, oxazoline polymers, polyalkylene-imines, maleic acid or anhydride

copolymers, hydroxyethylcellulose and polyacetals, or glycidyl ethers,

glycosides, carboxylate esters of polyhydric alcohols, gallic acids and their

salts, esters or amides, cyclodextrins, phosphorus compounds, alpha, beta

-unsaturated carboxylate esters and ionic surface-active or interfacially

active compounds. INDEPENDENT CLAIMS are also included for:

(i) production of DMC catalysts by (1) reacting (A) metal salts and metal

cyanide salts in aqueous solution with (B) complex ligands selected from

functionalized polymers, glycidyl ethers, glycosides, carboxylate esters of

polyhydric alcohols, gallic acids or their salts, esters or amides, cyclodextrins, phosphorus compounds, alpha , beta -unsaturated carboxylic acid

esters or ionic surface- or interfacially-active compounds and (C) 2 or more

complex-formers (c) as above and then (2) isolating, washing and drying the catalyst;

(ii) production of polyether-polyols by reaction of alkylene oxides with

H-functional starter compounds in presence of DMC catalysts as above; and

(iii) polyether-polyols obtained by this process.

USE - For the production of polyether-polyols by polyaddition of alkylene

oxides to starter compounds with active hydrogen atoms (claimed). The polyols

obtained are used for the production of polyurethanes.

ADVANTAGE - Improved double metal cyanide catalysts with greatly increased

activity, enabling shorter alkoxylation times and more economical production of

polyether-polyols (ideally using so little catalyst that the product can be

used directly for the production of polyurethane without removing catalyst residues).

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: DOUBLE METAL CYANIDE CATALYST POLYETHER PRODUCE CONTAIN DOUBLE

METAL CYANIDE COMPOUND ORGANIC LIGAND TERTIARY BUTANOL

TWO MORE

COMPLEX FORMER FUNCTION POLYMER PHOSPHORUS COMPOUND

DERWENT-CLASS: A25 A97 E19

CPI-CODES: A02-A06; A02-A07; A05-G03; A05-H01A; A10-E01; A12-W11K; E01; E05-G;

E06-A03; E07-A03B; E10-C03; E10-D03C; E10-E04C; E10-E04L3; E10-G02; E32-B; N05-C;

CHEMICAL-CODES:

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Chemical Indexing M3 *01*

Fragmentation Code

 H4
 H401
 H481
 H5
 H521
 H8
 M280
 M312
 M321
 M332

 M342
 M383
 M391
 M423
 M730
 M782
 M904
 M905
 M910
 Q121

Q421 R023

Specfic Compounds

01859K 01859C 01859Q 01859M A016GK A016GC A016GQ A016GM

Registry Numbers

1859S 1859U

Chemical Indexing M3 *02*

Fragmentation Code

H7 H714 H721 J5 J581 M210 M211 M212 M262 M282

M320 M423 M730 M782 M904 M905 Q121 Q421 R023

Speciic Compounds

A4FH9K A4FH9C A4FH9O A4FH9M

Chemical Indexing M3 *03*

Fragmentation Code

F011 F012 F423 H2 H211 H7 H713 H721 J5 J521

L9 L941 M210 M212 M273 M281 M320 M423 M510 M521

M530 M540 M730 M782 M904 M905 Q121 Q421 R023

Specfic Compounds

A002WK A002WC A002WO A002WM

Chemical Indexing M3 *04*

Fragmentation Code

H7 H713 J0 J011 J2 J271 M210 M211 M212 M262

M272 M281 M423 M510 M520 M530 M540 M730 M782 M904

M905 0121 Q421 R023

Specfic Compounds

A012NK A012NC A012NQ A012NM

Chemical Indexing M3 *05*

Fragmentation Code

H4 H401 H481 H7 H713 H721 H8 M210 M212 M272

M281 M320 M423 M510 M520 M530 M540 M730 M782 M904

M905 Q121 Q421 R023

Specfic Compounds

A01EAK A01EAC A01EAQ A01EAM

Chemical Indexing M3 *06*

Fragmentation Code

H7 H714 H721 K0 L1 L145 M210 M212 M263 M281

M320 M423 M730 M782 M904 M905 Q121 Q421 R023

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Specfic Compounds A02NXK A02NXC A02NXO A02NXM

Chemical Indexing M3 *07*

Fragmentation Code

H7 H714 H721 J0 J011 J1 J171 M210 M212 M262

M281 M320 M423 M510 M520 M530 M540 M630 M730 M782

M904 M905 Q121 Q421 R023

Specfic Compounds

A02LOK A02LOC A02LOQ A02LOM A037TK A037TC A037TQ A037TM

Chemical Indexing M3 *08*

Fragmentation Code

H7 H714 H721 J0 J011 J1 J171 M210 M213 M262

M281 M320 M423 M510 M520 M530 M540 M730 M782 M904

M905 0121 0421 R023

Specfic Compounds

A07AEK A07AEC A07AEO A07AEM

Chemical Indexing M3 *09*

Fragmentation Code

M730 M782 M905 Q121 Q421 R023

Specfic Compounds

A03C2K A03C2C A03C2O A03C2M

Chemical Indexing M3 *10*

Fragmentation Code

H7 M714 H721 J0 J011 J3 J371 M210 M212 M262

M281 M320 M423 M510 M520 M530 M540 M730 M782 M904

M905 Q121 Q421 R023

Specfic Compounds

A035MK A035MC A035MQ A035MM

Chemical Indexing M3 *11*

Fragmentation Code

H4 H401 H481 H8 M210 M214 M233 M272 M281 M320

M416 M620 M730 M782 M904 M905 M910 Q121 Q421 R023

Specfic Compounds

00373K 00373C 00373Q 00373M

Registry Numbers

0373S 0373U

Chemical Indexing M3 *12*

Frag: ntation Code

A427 A430 A940 A980 C106 C107 C520 C730 C801 C802

C803 C806 C807 M411 M730 M782 M904 M905 Q121 Q421

R023

Specfic Compounds

A3DAGK A3DAGC A3DAGQ A3DAGM

Chemical Indexing M3 *13* Fragmentation Code G017 G100 H4 H403 H443 H8 J0 J011 J1 J131 M280 M320 M414 M510 M520 M531 M540 M730 M782 M904 M905 H910 Q121 Q421 R023 Specfic Compounds 01170K 01170C 01170Q 01170M 09472K 09472C 09472O 09472M Registry Numbers 1170S 1170U Chemical Indexing M3 *14* Fragmentation Code B415 B701 B712 B720 B741 B815 B831 J0 J271 M210 M212 M272 M283 M312 M321 M331 M340 M342 .M349 M361 M391 M411 M510 M520 M530 M540 M620 M730 M782 M904 M905 Q121 Q421 R023 Specfic Compounds A4FHHK A4FHHC A4FHHQ A4FHHM Chemical Indexing M3 *15* Fragmentation Code J013 J2 J0 J273 M210 M215 M231 M262 M283 M313 M321 M332 M343 M383 M391 M416 M620 M730 M782 M904 M905 Q121 Q421 R023 Specfic Compounds 12801K 12801C 12801Q 12801M Chemical Indexing M3 *16* Fragmentation Code A424 A426 A427 A428 A430 A677 A940 A980 C106 C107 C520 C730 C801 C802 C803 C806 C807 M411 M730 M782 M904 M905 Q121 Q421 R023 Markush Compounds 200042-13201-K 200042-13201-C 200042-13201-Q 200042-13201-M Chemical *ndexing M3 *17* Fragmentation Code F012 F013 F014 F015 F016 F113 F123 H4 H403 H404 H422 H423 H481 H5 H521 H8 K0 $rac{1}{8}$ L810 L821 L831 M210 M211 M212 M213 M214 M215 M216 M220 M221 M222 M223 M224 M225 M226 M231 M232 M233 M272 M281 M311 M321 M342 M373 M391 M413 M510 M521 M530 M540 M730 M782 M904 M905 Q121 Q421 R023 Markush Compounds 200042-13203-K 200042-13203-C 200042-13203-Q 200042-13203-M Chemical Indexing M3 *18* Fragmentation Code F012 F019 F100 F199 H583 H584 H589 L660 L699 M280 M311 M312 M313 M314 M315 M316 M321 M322 M323 M331

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M332 M333 M340 M342 M373 M383 M391 M392 M393 M413
    M510 M521 M522 M530 M540 M730 M782 M904 M905 Q121
    O421 R023
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    00012
    Markush Compounds
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Chemical Indexing M3 *19*
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    M215 M216 M220 M221 M222 M223 M224 M225 M226 M231
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    M620 M730 M782 M904 M905 Q121 Q421 R023
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Chemical Indexing M3 *20*
    Fragmentation Code
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    M213 M214 M215 M216 M220 M221 M222 M223 M224 M225
    M226 M231 M232 M233 M250 M272 M281 M282 M320 M411
    M510 M520 M530 M540 M620 M730 M782 M904 M905 O121
    Q421 R023
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Chemical Indexing M3 *21*
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    M214 M215 M216 M220 M221 M222 M223 M224 M225 M226
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    M540 M620 M730 M782 M904 M905 Q121 Q421 R023
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Chemical Indexing M3 *22*
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    M216 M220 M221 M222 M223 M224 M225 M226 M231 M232
    M233 M262 M281 M320 M416 M620 M730 M782 M904 M905
    Q121 Q421 R023
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Chemical Indexing M3 *23*
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   M216 M220 M221 M222 M223 M224 M225 M226 M231 M232
   M233 M262 M272 M281 M320 M416 M620 M730 M782 M904
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10/19/06, EAST Version: 2.1.0.14

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M905 Q121 Q421 R023
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    0486S 0486U
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    H583 H584 H589 H8 L630 L660 L699 M280 M311 M312
    M313 M314 M315 M316 M321 M322 M323 M331 M332 M333
    M334 M340 M342 M343 M344 M383 M393 M416 M620 M720
    M904 M905 N153 N205 N209 N242 N262 N309 N342 N362
    N442 N513 N522 O110
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    M342 M383 M393 M423 M510 M520 M530 M540 M620 M730
    M904 M905
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Chemical Indexing M3 *27*
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    M530 M540 M730 M904 M905 M910
    Ring Index
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    Specfic Compounds
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    Registry Numbers
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UNLINKED-DERWENT-REGISTRY-NUMBERS: 0370S; 0370U; 0373S; 0373U;
0486S ; 0486U
; 1170S ; 1170U ; 1859S ; 1859U
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Polymer Index [1.1]
    018 ; G1558*R D01 F47 ; H0000 ; H0237*R ; P0055 ; L9999 L2573
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; L9999 L2200 ; L9999 L2744 L2733 ; M9999 M2153*R ; M9999 M2200
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    F34 D01 D10
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    H0000 ; H0237*R ; P0055 ; L9999 L2573 L2506 ; L9999 L2200 ; L9999
    L2744 L2733; M9999 M2153*R; M9999 M2200; M9999 M2324; P1036
    P0964 F34 D01; S9999 S1376; P8015 P0975 P0964 D01 D10 D11 D50
    D83 F34
Polymer Index [1.3]
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Polymer Index [1.4]
    018; D00 D01 D61*R F12 K* 1A Co 8B Tr Gm Zn 2B D23 D22 D31 D73
    D42 F34 F47 F90 F41 F91 D63 F33 F30 F36 F35 D19 D18 D76 D50 D60
   F70*R P* 5A D12 D10 D58 D08 D17 D13 D34 D79 D94 D95 ; R00373
G3496
   D01 D10 D11 D50 D84 F26 F27 ; C999 C102 C000 ; C999 C340 ; C999
   C157 ; C999 C248 ; C999 C328 ; C999 C306 ; K9621*R
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   P1592 P0964 H0260 F34 F77 H0044 H0011 D01
Polymer Index [2.2]
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    018 ; M9999 M2379*R ; M9999 M2835 ; L9999 L2391 ; L9999 L2379*R
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    018 ; M9999 M2379*R ; M9999 M2835 ; L9999 L2391 ; L9999 L2379*R
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    D01 D63
Polymer Index [3.4]
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    018 ; M9999 M2379*R ; M9999 M2835 ; L9999 L2391 ; L9999 L2379*R
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   F07
Polymer Index [3.7]
    018 ; R01859 G3678 G3634 D01 D03 D11 D10 D23 D22 D31 D42 D50 D76
    D92 F24 F29 F26 F34 H0293 P0599 G3623 ; M9999 M2379*R ; M9999
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C999
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    ; L9999 L2835 ; C999 C033 C000 ; C999 C157 ; P0248 P0226 D01 F24
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    ; L9999 L2379*R ; L9999 L2835 ; C999 C033 C000 ; C999 C157 ;
H0000
    ; P0055 ; P0975*R P0964 F34 D01 D10 ; M9999 M2153*R ; M9999 M2186
    ; M9999 M2200
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    D18 D76 D88 F31 F30 D11; R00446 G0282 G0271 G0260 G0022 D01 D12
    D10 D26 D51 D53 D58 D60 D83 F36 F35; R00444 G0453 G0260 G0022
D01
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D01
    D12 D10 D26 D51 D53 D58 D83 F12 ; R00824 G0588 G0022 D01 D11 D10
    D12 D51 D53 D58 D83 F34; R00892 G0588 G0022 D01 D11 D10 D12 D51
    D53 Lo8 D84 F34; R00835 G0566 G0022 D01 D11 D10 D12 D51 D53 D58
    D63 D84 F41 F89; R00438 G0679 G0022 D01 D11 D10 D12 D51 D53 D58
    D84 F23 ; M9999 M2379*R ; M9999 M2835 ; L9999 L2391 ; L9999
L2379*R
    ; L9999 L2835 ; C999 C033 C000 ; C999 C157 ; H0000 ; P1741 ;
P0088
     ; P0099 ; P0102
Polymer Index [3.11]
    018 ; R00446 G0282 G0271 G0260 G0022 D01 D12 D10 D26 D51 D53 D58
    D60 D83 F36 F35; R00444 G0453 G0260 G0022 D01 D12 D10 D26 D51
D53
    D58 D83 F70 F93; M9999 M2379*R; M9999 M2835; L9999 L2391;
L9999
    L2379*R; L9999 L2835; C999 C033 C000; C999 C157; H0022 H0011
    ; P0088
Polymer Index [3.12]
    018 ; R00446 G0282 G0271 G0260 G0022 D01 D12 D10 D26 D51 D53 D58
    D60 D83 F36 F35; R00901 G0760 G0022 D01 D12 D10 D51 D53 D59 D60
    D84 F37 F35 E00 E01 ; M9999 M2379*R ; M9999 M2835 ; L9999 L2391
    ; L9999 L2379*R ; L9999 L2835 ; C999 C033 C000 ; C999 C157 ;
H0022
    H0011; P0088
Polymer Index [3.13]
    018; G0635 G0022 D01 D12 D10 D23 D22 D31 D41 D51 D53 D58 D75 D86
    F71 ; R00446 G0282 G0271 G0260 G0022 D01 D12 D10 D26 D51 D53 D58
   D60 D83 F36 F35; M9999 M2379*R; M9999 M2835; L9999 L2391;
L9999
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L2375 R; L9999 L2835; C999 C033 C000; C999 C157; H0022 H0011
    ; P0088
Polymer Index [3.14]
    018 ; R00708 G0102 G0022 D01 D02 D12 D10 D19 D18 D31 D51 D53 D58
    D76 D88; R00446 G0282 G0271 G0260 G0022 D01 D12 D10 D26 D51 D53
    D58 D60 D83 F36 F35; M9999 M2379*R; M9999 M2835; L9999 L2391
    ; L9999 L2379*R ; L9999 L2835 ; C999 C033 C000 ; C999 C157 ;
H0022
    H0011; P1741; P0088
Polymer Index [3.15]
    018 ; R00843 G0760 G0022 D01 D23 D22 D31 D42 D51 D53 D59 D65 D75
    D84 F39 E00 E01; R00901 G0760 G0022 D01 D12 D10 D51 D53 D59 D60
    D84 F37 F35 E00 E01; M9999 M2379*R; M9999 M2835; L9999 L2391
    ; L9999 L2379*R ; L9999 L2835 ; C999 C033 C000 ; C999 C157 ;
H0011*R
    : H0293
Polymer index [3.16]
    018 ; R24032 R01863 G3623 D01 D11 D10 D23 D22 D31 D42 D50 D76 D86
    F24 F29 F26 F34 H0293 P0599; M9999 M2379*R; M9999 M2835; L9999
    L2391 ; L9999 L2379*R ; L9999 L2835 ; C999 C033 C000 ; C999 C157
Polymer Index [3.17]
    018; ND01; Q9999 Q6917
Polymer Index [3.18]
    018 ; D00 D61*R F12 K* 1A Co 8B Tr Zn 2B Gm ; H0226
Polymer Index [3.19]
    018 ; K* 1A Co 8B Tr Zn 2B Gm ; H0157 .
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